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Vienna white (*Columba alba*) and a common ring dove (*Turtur risorius*). She was remarkable for her unusual appearance and manner, and upon dissection the ovary was found to be abnormal. The first thing in the structure of the ovary to strike the attention was the large number of double eggs, that is, two or more eggs lay within the common follicle; they might or might not be separated by a distinct membrane.

Most of the larger eggs were vacuolated, the vacuoles always appearing in connection with the substance of the sphere or yolk-nucleus. This sphere substance seemed to be also closely related to the membrane separating double eggs.

The nuclei in many cases were shrunken and seemed to be degenerating. Nucleoli were frequently present, but in many cases were indistinct and irregular in outline. Mitotic division of the nucleus was never observed, although one or two centrosomes were often present. Many of the eggs, especially the larger ones, were undergoing resorption by means of phagocytes which were the transformed follicle cells. Instances were found where the follicle cells had disappeared along part of the periphery of the egg, leaving behind a deposit of pigment. The doubling of the eggs seemed to be due in most of the smaller ones to division of the primordial egg cell, and in the larger ones to fusion of contiguous cells. The cause of such abnormalities is not known. Some connection with hybridization may be shown later.

MICHAEL F. GUYER.

Titles of papers given during the two Quarters: 'Life-History of *Dicyema*,' Professor W. M. Wheeler; 'Abnormalities in Ovigenesis,' M. F. Guyer; 'Recent Literature on Annelid Morphology,' R. S. Lillie; 'Experimental Production of Meroblastic Cleavage in the Frog's Egg (O. Hertwig), Dr. C. M. Child; 'Recent Experimental Work on the Ctenophore Egg' (Fischel & H. E. Zeigler), Dr. C. M. Child; 'Some Native Americans' (illustrated), A. L. Melander & C. T. Brues; 'The Formation of Giant Embryos in *Ascaris*' (Zur Strassen), H. H. Newman; 'Blind Fishes,' Professor C. H. Eigenmann, of the University of Indiana; 'Instincts and Habits of Solitary Wasps (Peckham), Miss M. M. Enteman; 'The Evolution of the Color-pattern in the Pigeon's Wing,' Professor C. O. Whitman; 'The Excretory Organs of Petromyzon,' Professor W. M. Wheeler; 'The Excretory System of Turtles,' Miss E. R. Gregory; 'A Review of the Phosphorescent Organs of Animals' (illustrated), Professor S. Watasé; 'Hybridism in Pigeons,' M. F. Guyer.

DISCUSSION AND CORRESPONDENCE.

TOTEMISM.

TO THE EDITOR OF SCIENCE: Totemism has been a most obscure subject, and it is only of late that any real light has been thrown on it by the publication of Baldwin-Gillen's 'Native Tribes of Central Australia,' which is ably discussed by Mr. J. G. Frazer in the April and May numbers of the *Fortnightly Review*. Among the Australians an Emu group, *e. g.*, is that who by refraining from killing and eating emus show that by their friendship with emus they acquire power with them, and identify themselves with the emus by blood ceremonies and by masquerading as emus. Now, all this we may interpret as a trap, a bit of animistic cunning like that of the hunter stalking. The Emu men are specialized as a group to a control over the emus by magic rites, making them multiply and be convenient food for the rest of the tribe. Totemism is a cooperation primarily for food supply; "you Grub men get grubs for me by your special kinship with grubs, and we Emu men likewise will get emus for you." The Totemic method is a sly specialization by which a tribe of men get the best of their animistic fellows—emus, grubs, rain, etc.—for their own advantage, and so the Totemic organization is not a religious, but wholly an economic, socialization.

It appears to us that this interpretation, as we have just expressed it, is sufficient, and Mr. Frazer's remark about the motive of 'inconsistency' which restrains from eating Totem, as a cannibalism, presumes too much on the logical power of the native. And cannibalism is a common thing in nature; but among men and most animals is reduced to eating one's enemies or persons of another tribe; hence when the

Totem is adopted into near kinship we merely see, in the not-killing and eating, that which follows naturally the rule of human kinship. But if the main motive in abstaining from eating Totem 'is to conciliate,' then Totemism is so far religious as a method of dealing with superiors, for in a broad sense religion includes all acts toward the superior as such. But Totemism, so far as it makes the native coercive to his fellow animals by force of cunning magic, certainly is unreligious.

As to Exogamy, while this may arise similarly with abstinence from killing and eating, and is thus a saving from supposed incest, as Mr. Frazer says, we would also see that marriage within a Totem group might have the undesirable result of a Totem animal as offspring instead of a human child. Mr. Frazer reports something analogous in his book on Totemism (page 16): "Bakalai think that if a man were to eat his Totem the women of his clan would miscarry and give birth to animals of the Totem kind or die with an awful disease."

It would be of interest to know whether there is a Totemic instinct and whether it emerges in civilized children. I think it might be found, especially among street Arabs and others early thrown on their own resources. As to Totemism bearing on the domestication of animals, the researches of McGee and others in the United States favor domestication of animals from commensalism. (Cf. also domestication of snakes as ratters in the Philippines.) Totemism certainly acts analogously to a limited close period by restricting those who shall kill and eat certain food animals; but the Totemic idea of controlling by spell is contrary to the idea of direct subjection, and would scarcely lead to it. The Totem group are merely those who stay at home, and by their intimate relationship weave the spells by which the prey is made plenteous and convenient to the hunter.

In Totemism and also Fetichism—which is but a means to Totemic power—we see the first groping of the human mind toward causal relation and its practical application; but so grossly animistic, especially in its kinship idea, as to be difficult of understanding by civilized man with his scientific mode of thought. The Totemic control of nature by making oneself akin, is antipodal to the depersonalizing scientific method. Totemism is the human animal fascinating his prey by kinship rite and spell.

Hiram M. Stanley.

Lake Forest, Ill., May 29, 1899.

Arousal of an Instinct by Taste Only.

Editor of Science: The following observation is submitted on the chance that it may be of use. A dead mouse was given to two kittens eight weeks old. They showed no interest in it from sight or smell, but as soon as they were made to taste the mouse they went into a fighting passion, which remained as long as the mouse was tasted. When they were forced to give up the mouse, all interest was lost and could not be aroused even by smell. Yet as soon as the tongue again touched the mouse the kitten fell into the same passion of fighting. One test showed marked results. Giving the mouse to one kitten, I held it, scratching vigorously, in one hand, while with the other hand I made the other kitten touch and smell the mouse and finally taste it. As long as the second one did not taste the mouse it showed no interest, but it began to fight vigorously at the moment of tasting. As soon as the first kitten was made to release its hold on the mouse it at once ceased to show any interest.

E. W. Scripture.

Current Notes on Meteorology.

Influence of the Great Lakes on Precipitation.

The *Meteorological Chart of the Great Lakes* for June (U. S. Weather Bureau) presents a chart of the normal annual precipitation of rain and snow in the drainage basins of the Great Lakes, with a set of tables and a brief summary prepared by A. J. Henry. The conclusion reached as to the influence of the Lakes on precipitation is as follows: With the possible exception of Lake Superior, the lakes do not seem to have a very marked influence on the precipitation over adjacent land areas. There is more precipitation on the south than on the north side of Lakes Superior, Erie and Ontario, the differ-